

What is claimed is:

- 1 1. A library of nucleic acid constructs, each construct comprising:
2 a cis element sequence comprising one or more copies of a cis element to
3 which a transcription factor is capable of binding, the cis element sequence varying
4 within the library of constructs;
5 a promoter sequence 3' relative to the cis element sequence; and
6 a reporter sequence 3' relative to the promoter sequence that comprises a
7 variable sequence that varies within the library;
8 wherein a same cis element sequence is employed with a given reporter
9 sequence within the library of constructs.
- 1 2. A library according to claim 1 wherein the reporter sequences comprise
2 priming sequences 5' and 3' relative to the variable sequences.
- 1 3. A library according to claim 2 wherein the 5' and 3' priming sequences are
2 conserved within the library.
- 1 4. A library according to claim 1 wherein the library comprises at least 10
2 different cis elements.
- 1 5. A library according to claim 1 wherein the library comprises at least 20
2 different cis elements.
- 1 6. A library according to claim 1 wherein the library comprises at least 50
2 different cis elements.
- 1 7. A library according to claim 1 wherein the library comprises at least 100
2 different cis elements.
- 1 8. A library according to claim 1 wherein the cis element sequence comprises at
2 least two copies of the cis element.

- 1 9. A library according to claim 1 wherein the cis element sequence comprises at
2 least three copies of the cis element.
- 1 10. A library according to claim 1 wherein the cis element sequence comprises at
2 least four copies of the cis element.
- 1 11. A library according to claim 1 wherein an individual copy of the cis element
2 has a length between about 5 and 100 base pairs.
- 1 12. A library according to claim 1 wherein an individual copy of the cis element
2 has a length between about 5 and 75 base pairs.
- 1 13. A library according to claim 1 wherein an individual copy of the cis element
2 has a length between about 5 and 50 base pairs.
- 1 14. A library according to claim 1 wherein the variable sequence of the reporter
2 sequence is at least 15 bases in length.
- 1 15. A library according to claim 1 wherein the variable sequence of the reporter
2 sequence is at least 25 bases in length.
- 1 16. A library according to claim 1 wherein the variable sequence of the reporter
2 sequence is at least 50 bases in length.
- 1 17. A library according to claim 1 wherein the variable sequence of the reporter
2 sequence is between 15 and 2000 bases in length.
- 1 18. A library according to claim 1 wherein the variable sequence of the reporter
2 sequence is between 25 and 2000 bases in length.
- 1 19. A library according to claim 1 wherein the variable sequence of the reporter
2 sequence is between 50 and 2000 bases in length.
- 1 20. A library according to claim 1 wherein the different reporter sequences
2 encode different reporter proteins.

21. A library according to claim 20 wherein the reporter sequence is in an open reading frame relative to the promoter sequence.

22. A library according to claim 21 wherein the reporter sequence comprises a stop codon 3' relative to sequence encoding reporter protein.

23. A library of expression vectors comprising:
a library of constructs, each construct comprising
a cis element sequence comprising one or more copies of a cis element to which a transcription factor is capable of binding, the cis element sequence varying within the library of constructs;
a promoter sequence 3' relative to the cis element sequence; and
a reporter sequence 3' relative to the promoter sequence that comprises a variable sequence that varies within the library of constructs;
wherein a same cis element sequence is employed with a given reporter sequence within the library of constructs.

24. A library according to claim 23 wherein the expression vectors are mammalian expression vectors.

25. A library according to claim 23 wherein the reporter sequences comprise priming sequences 5' and 3' relative to the variable sequences.

26. A library according to claim 23 wherein the library of constructs comprises at least 10 different cis elements.

27. A library according to claim 23 wherein the cis element sequence comprises at least two copies of the cis element.

28. A library according to claim 23 wherein the cis element sequence comprises at least three copies of the cis element.

29. A library according to claim 23 wherein the cis element sequence comprises at least four copies of the cis element.

- 1 30. A library according to claim 23 wherein an individual copy of the cis
2 element has a length between about 5 and 100 base pairs.
- 1 31. A library according to claim 23 wherein the variable sequence of the reporter
2 sequence is at least 15 bases in length.
- 1 32. A library according to claim 23 wherein the variable sequence of the reporter
2 sequence is between 15 and 2000 bases in length.
- 1 33. A library according to claim 23 wherein the different reporter sequences
2 encode different reporter proteins.
- 1 34. A library according to claim 33 wherein the reporter sequence is in an open
2 reading frame relative to the promoter sequence.
- 1 35. A library according to claim 34 wherein the reporter sequence comprises a
2 stop codon 3' relative to sequence encoding reporter protein.
- 1 36. A library of cells transduced or transfected with a library of constructs, each
2 construct comprising:
3 a cis element sequence comprising one or more copies of a cis element to
4 which a transcription factor is capable of binding, the cis element sequence varying
5 within the library of constructs;
6 a promoter sequence 3' relative to the cis element sequence; and
7 a reporter sequence 3' relative to the promoter sequence that comprises a
8 variable sequence that varies within the library;
9 wherein a same cis element sequence is employed with a given reporter
10 sequence within the library of constructs.
- 1 37. A library according to claim 36 wherein the cells are mammalian cells.
- 1 38. A library according to claim 36 wherein the reporter sequences comprise
2 priming sequences 5' and 3' relative to the variable sequences.

1 39. A library according to claim 36 wherein the library of constructs comprises
2 at least 10 different cis elements.

1 40. A library according to claim 36 wherein the cis element sequence comprises
2 at least two copies of the cis element.

1 41. A library according to claim 36 wherein the cis element sequence comprises
2 at least three copies of the cis element.

1 42. A library according to claim 36 wherein the cis element sequence comprises
2 at least four copies of the cis element.

1 43. A library according to claim 36 wherein an individual copy of the cis
2 element has a length between about 5 and 100 base pairs.

1 44. A library according to claim 36 wherein the variable sequence of the reporter
2 sequence is at least 15 bases in length.

1 45. A library according to claim 36 wherein the variable sequence of the reporter
2 sequence is between 15 and 2000 bases in length.

1 46. A library according to claim 36 wherein the different reporter sequences
2 encode different reporter proteins.

1 47. A library according to claim 46 wherein the reporter sequence is in an open
2 reading frame relative to the promoter sequence.

1 48. A library according to claim 47 wherein the reporter sequence comprises a
2 stop codon 3' relative to sequence encoding reporter protein.

1 49. A kit comprising
2 a library of nucleic acid constructs, each construct comprising:
3 a cis element sequence comprising one or more copies of a cis
4 element to which a transcription factor is capable of binding, the cis element

sequence varying within the library of constructs,
a promoter sequence 3' relative to the cis element sequence, and
a reporter sequence 3' relative to the promoter sequence that
comprises a variable sequence that varies within the library,
wherein a same cis element sequence is employed with a given
reporter sequence within the library of constructs; and
a library of hybridization probes for detecting by a hybridization assay a
plurality of the variable sequences of the reporter sequences comprised in the library
of nucleic acid constructs and/or complements of the variable sequences.

50. A kit according to claim 49, wherein the library of hybridization probes are
immobilized in an array.

51. A kit according to claim 49 wherein the reporter sequences comprise priming
sequences 5' and 3' relative to the variable sequences and the kit further comprises
primers for the priming sequences.

52. A kit according to claim 49 wherein the library comprises at least 10
different reporter sequences.

53. A kit according to claim 52 wherein the library of hybridization probes
comprises hybridization probes for detecting at least 10 different reporter sequences.

54. A kit according to claim 49 wherein the library of constructs comprises at
least 20 different reporter sequences.

55. A kit according to claim 54 wherein the library of hybridization probes
comprises hybridization probes for detecting at least 20 different reporter sequences.

56. A kit according to claim 49 wherein the library of constructs comprises at
least 50 different reporter sequences.

57. A kit according to claim 54 wherein the library of hybridization probes
comprises hybridization probes for detecting at least 50 different reporter sequences.

58. A kit comprising:
a library of expression vectors comprising
a library of nucleic acid constructs, each construct comprising:
a cis element sequence comprising one or more copies of a cis
element to which a transcription factor is capable of binding, the cis element
sequence varying within the library of constructs,
a promoter sequence 3' relative to the cis element sequence,
and
a reporter sequence 3' relative to the promoter sequence that
comprises a variable sequence that varies within the library,
wherein a same cis element sequence is employed with a
given reporter sequence within the library of constructs; and
a library of hybridization probes for detecting by a hybridization assay a
plurality of the variable sequences of the reporter sequences comprised in the library
of nucleic acid constructs, and/or complements of the variable sequences.

59. A kit according to claim 58, wherein the library of expression vectors are
mammalian expression vectors.

60. A kit according to claim 58, wherein the library of hybridization probes are
immobilized in an array.

61. A kit according to claim 58 wherein the reporter sequences comprise priming
sequences 5' and 3' relative to the variable sequences and the kit further comprises
primers for the priming sequences.

62. A kit according to claim 58 wherein the library of expression vectors
comprises at least 10 different reporter sequences.

63. A kit according to claim 62 wherein the library of hybridization probes
comprises hybridization probes for detecting at least 10 different reporter sequences.

1 64. A kit according to claim 58 wherein the library of expression vectors
2 comprises at least 20 different reporter sequences.

1 65. A kit according to claim 64 wherein the library of hybridization probes
2 comprises hybridization probes for detecting at least 20 different reporter sequences.

1 66. A kit according to claim 58 wherein the library of expression vectors
2 comprises at least 50 different reporter sequences.

1 67. A kit according to claim 64 wherein the library of hybridization probes
2 comprises hybridization probes for detecting at least 50 different reporter sequences.

1 68. A kit comprising
2 a library of cells transduced or transfected with a library of constructs, each
3 construct comprising:
4 a cis element sequence comprising one or more copies of a cis
5 element to which a transcription factor is capable of binding, the cis element
6 sequence varying within the library of constructs,
7 a promoter sequence 3' relative to the cis element sequence, and
8 a reporter sequence 3' relative to the promoter sequence that
9 comprises a variable sequence that varies within the library,
10 wherein a same cis element sequence is employed with a given
11 reporter sequence within the library of constructs; and
12 a library of hybridization probes for detecting by a hybridization assay a
13 plurality of the variable sequences of the reporter sequences comprised in the library
14 of nucleic acid constructs, and/or complements of the variable sequences.

1 69. A kit according to claim 68, wherein the library of cells are mammalian cells.

1 70. A kit according to claim 68, wherein the library of hybridization probes are
2 immobilized in an array.

- 1 71. A kit according to claim 68 wherein the reporter sequences comprise priming
2 sequences 5' and 3' relative to the variable sequences and the kit further comprises
3 primers for the priming sequences.
- 1 72. A kit according to claim 68 wherein the library of cells comprises at least 10
2 different reporter sequences.
- 1 73. A kit according to claim 72 wherein the library of hybridization probes
2 comprises hybridization probes for detecting at least 10 different reporter sequences.
- 1 74. A kit according to claim 68 wherein the library of cells comprises at least 20
2 different reporter sequences.
- 1 75. A kit according to claim 74 wherein the library of hybridization probes
2 comprises hybridization probes for detecting at least 20 different reporter sequences.
- 1 76. A kit according to claim 68 wherein the library of cells comprises at least 50
2 different reporter sequences.
- 1 77. A kit according to claim 74 wherein the library of hybridization probes
2 comprises hybridization probes for detecting at least 50 different reporter sequences.
- 1 78. A kit comprising
2 a library of nucleic acid constructs, each construct comprising:
3 a cis element sequence comprising one or more copies of a cis
4 element to which a transcription factor is capable of binding, the cis element
5 sequence varying within the library of constructs,
6 a promoter sequence 3' relative to the cis element sequence, and
7 a reporter sequence 3' relative to the promoter sequence that
8 comprises a variable sequence that varies within the library,
9 wherein a same cis element sequence is employed with a given
10 reporter sequence within the library of constructs; and
11 a look-up table, in physical form and/or stored on computer readable media,

the look-up table identifying a relationship between the reporter sequences in the library and the cis elements in the library and/or the transcription factors that bind to the cis elements in the library.

79. A kit comprising:

a library of expression vectors comprising

a library of nucleic acid constructs, each construct comprising:

a cis element sequence comprising one or more copies of a cis element to which a transcription factor is capable of binding, the cis element sequence varying within the library of constructs,

a promoter sequence 3' relative to the cis element sequence,

and

a reporter sequence 3' relative to the promoter sequence that comprises a variable sequence that varies within the library,

wherein a same cis element sequence is employed with a given reporter sequence within the library of constructs; and

a look-up table, in physical form and/or stored on computer readable media, the look-up table identifying a relationship between the reporter sequences in the library of constructs and the cis elements in the library of constructs and/or the transcription factors in the library of constructs that bind to the cis elements.

80. A kit comprising

a library of cells transduced or transfected with a library of constructs, each construct comprising:

a cis element sequence comprising one or more copies of a cis element to which a transcription factor is capable of binding, the cis element sequence varying within the library of constructs,

a promoter sequence 3' relative to the cis element sequence, and

a reporter sequence 3' relative to the promoter sequence that comprises a variable sequence that varies within the library,

wherein a same cis element sequence is employed with a given reporter sequence within the library of constructs; and

12 a look-up table, in physical form and/or stored on computer readable media,
13 the look-up table identifying a relationship between the reporter sequences in the
14 library of constructs and the cis elements in the library of constructs and/or the
15 transcription factors in the library of constructs that bind to the cis elements.

10057030-01440